

Customer No.: 31561  
Application No: 10/064,095  
Docket NO: 9068-US-PA

## REMARKS

### Present Status of the Application

This is a full and timely response to the outstanding final Office Action mailed on November 24, 2004. The Office Action has rejected claim 4 under 35 U.S.C. 112, first & second paragraphs and under 35 U.S.C. 103(a) as being unpatentable over He et al. (USP 6,649,950), Chen et al. (USP 6,392,263) and Rhode (USP 6,740,915), all considered together.

Claims 1-7 and 16 remain pending of which claims 1, 4 and 16 have been amended to correct editorial errors. It is believed that no new matter is added by way of these amendments made to the claims or otherwise to the application.

After carefully considering the remarks set forth in this Office Action and the cited references, it is however strongly believed that the cited references are deficient to adequately teach the claimed features as recited in the presently pending claims. The reasons that motivate the above position of the Applicant are discussed in detail hereafter, upon which reconsideration of the claims is most earnestly solicited.

**Discussion of Office Action Rejections**

*The Office Action rejected claim 4 under 35 U.S.C. 112, 1<sup>st</sup> & 2<sup>nd</sup> paragraphs.*

Specifically, the Office Action rejected claim 4 because the conductivity type of the source region does not have a clear antecedent. In response thereto, Applicant has amended claim 4 according to the Examiner's suggestion by incorporating the term "type" after conductivity. Withdrawal of the rejection is respectfully requested.

*The Office Action rejected claims 1-7 and 16 under 35 U.S.C. § 103(a) as being unpatentable over He et al. (USP 6,649,950, He hereinafter), Chen et al. (USP 6,392,263, Chen hereinafter) and Rhode (USP 6,740,915), all considered together.*

Applicants respectfully submit that He, Chen and Rhode, all considered together are legally deficient for the purpose of rendering claim 1 unpatentable because the reference or references, taken alone or combined, at least fails to teach or suggest each and every element recited in the claims.

Although the circuitry diagram of the present invention may be similar to those in the prior art references, the layout of CMOS image sensor device of the instant case is significantly different. For example, the present invention teaches, among other things, 'a local interconnect, wherein a first end of the local interconnect is located on the substrate

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between the photodiode sensing region and the reset transistor, extending to an upper portion of the isolation structure to cover a periphery of the isolation structure, ....'. With the local interconnect covering the periphery of the isolation structure of the photodiode, the periphery of the isolation structure (for example, the bird's beak area) can be protected from being damaged in the subsequent process to reduce the dark-current effect and increase the image sensor performance and the exposure time. None of the cited references neither teaches nor suggests such features as in the instant case. The Office concedes that Rhode teaches using the contact 320 to connect the source region 201 of the reset transistor in He to the gate of a source follower in Rhodes and Chen. Applicant again disagrees. First of all, Rhodes teaches a photogate 342 instead of a photosensing region. Moreover, the polysilicon layer 320 of Rhodes serves to connect the doped region 315 of the transfer transistor. There is no where in Rhodes that suggests an interconnect to electrically connect the source region of the reset transistor, let alone the fact the interconnect is extending to an upper portion of the isolation structure to cover a periphery of the isolation structure.

For at least these reasons the references, taken alone or combined, fail to teach or suggest each and every element recited in the claims, and the motivation to combine Chen, He and Rhode is also lacking. Applicant respectfully submits that all rejections have been rendered moot and/or accommodated and that the now pending claim 1 is in condition for allowance. Since claims 2-7 are dependent claims which further define the invention recited in claim 1,

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respectively, Applicants respectfully assert that these claims also are in condition for allowance.  
Thus, reconsideration and withdrawal of this rejection are respectfully requested.

### CONCLUSION

For at least the foregoing reasons, it is believed that the presently pending claims 1-7 and 16 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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Respectfully submitted,



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